**Asthma**

Summary of Methods and Data for Estimate of Costs of Illness

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| 1. Estimated Total Economic Cost | $ 14 billion |
| Estimated Direct Cost | $ 12 billion |
| Estimated Indirect Cost | $ 2 billion |
| Reference Year | 1996 |
| IC Providing the Estimate | NIAID |
| Direct Costs Include: Other related nonhealth costs | No |
| Indirect Costs Include: | |
| Mortality costs | Yes |
| Morbidity costs: Lost workdays of the patient | Yes |
| Morbidity costs: Reduced productivity of the patient | Yes |
| Lost earnings of unpaid care givers | No |
| Other related nonhealth costs | No |
| Interest Rate Used to Discount Out-Year Costs | Not Available |

2. Category code(s) from the International Classification of Diseases, 9th Revision, Clinical Modification,(ICD-9-CM) for all diseases whose costs are included in this estimate: 493.

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| 3. Estimate Includes Costs: | |
| Of related conditions beyond primary, strictly coded ICD-9-CM category | No |
| Attributable to the subject disease as a secondary diagnosis | No |
| Of conditions for which the subject disease is an underlying cause | No |
| 4. Population Base for Cost Estimate (Total U.S. pop or other) | Total U.S. pop. |
| 5. Annual (prevalence model) or Lifetime (incidence model) Cost: | Annual |
| 6. Perspective of Cost Estimate (Total society, Federal budget, or Other) | Total Society |
| 7. Approach to Estimation of Indirect Costs | Human Capital |

8. Source of Cost Estimate: (Reference published or unpublished report, or address and telephone of person/office responsible for estimate)

Farquhar I et al, Cost estimates for environmentally related asthma; Research in Human Capital and Development, Vol. 12, 1998, pp. 35-46.

9. Other Indicators of Burden of Disease:

In 1994, there were 14.6 million persons (5.6%) in the United States who had asthma and more than 451,000 hospitalizations were attributed to asthma as the first-listed diagnosis. Of those hospitalizations, 169,000 were recorded for children less than 15 years of age. In 1994, asthma accounted for more than 134 million days of restricted activity and 64 million days of bed disability (National Health Interview Survey, 1994).

Although asthma deaths are infrequent for all ages, the asthma mortality rate has followed an unusual pattern. The mortality rate fell dramatically from the 1960's to the late 1970's, from 28.2/1,000,000 in 1960-62 to 8.2/1,000,000 in 1975-78. Since then, mortality has more than doubled to 17.9/1,000,000 in 1993-95. Among 0-24 year olds, asthma deaths have increased

118% between 1980 and 1993 (MMWR 45:353-3, 1996).

Asthma is more prevalent among African Americans than whites. In 1993, among 0-24 year olds, African Americans were 3-4 times more likely to be hospitalized for asthma and 4-6 times more likely than whites to die of asthma (MMWR 45:353-3, 1996).

10. Commentary:

Farquhar, et al replaces the previous report by Weiss[1], et al due to rapid growth in the prevalence of asthma and changes in the structure of health care utilization since the mid 1980's. The disease prevalence has been varying by age groups. The rates of particular types of medical care utilization vary by age groups as well. For example in 1987, almost 31% of all hospital and emergency care were attributed to those under 17, while in 1996 this number fell to 20% for this age group. Among those over 65 years old, hospital and emergency care utilization went from 56% in 1987 to 43% in 1996.

In the report by Farquar et al, the 1987 National Medical Expenditure Survey (NMES) was used as a single data source for constructing cost estimates. Data on asthma-related health care utilization (NMES 1987), data on asthma prevalence in 1988 and 1992 (Prevalence of Selected Chronic Conditions 1993 and 1997 respectively), and rates of ambulatory care, hospitalization, and emergency care (Dr. David Mannino, NCEH/CDC) were used to estimate asthma-related health care utilization in 1996. The diagnosis-specific expenditure model (DSME) was used to estimate the 1987 asthma prevalence, diagnosis specific medical expenses by categories of care and by sources of payment. The total direct cost was determined by combining the totals for each health care category.

[1]Weiss KB, Gergen PJ, Hodgson TA. An economic evaluation of asthma in the United States. *NEJM*. 326(13):862-866, 1992.